

IN THE CLAIMS:

Please CANCEL claims 1-20 without prejudice to or disclaimer of the recited subject matter.

Please ADD claims 25-34, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1-20. (Cancelled)

21-24. (Cancelled)

25. (New) A projection exposure apparatus comprising:

an illumination optical system for illuminating a pattern of a first object, with use of exposure light from an exposure light source;

a projection optical system for directing the exposure light, emitted from the pattern, onto a second object; and

an interferometer for measuring an optical characteristic of said projection optical system, on the basis of interference produced by use of light emitted from an interference light source separate from the exposure light source.

26. (New) An apparatus according to Claim 25, further comprising means for detecting a curvature of field of said projection optical system, by use of said interferometer.

27. (New) An apparatus according to Claim 25, further comprising means for detecting an aberration of said projection optical system, by use of said interferometer.
28. (New) An apparatus according to Claim 25, wherein said interference light source is a light source which emits light having a wavelength of at least one of 496 nm and 363.8 nm.
29. (New) An apparatus according to Claim 28, wherein said interference light source is an argon laser.
30. (New) An apparatus according to Claim 25, further comprising means for correcting a state of aberration of said projection optical system, on the basis of the measurement made by use of said interferometer.
31. (New) An apparatus according to Claim 25, further comprising adjusting means for adjusting an amount of aberration of said projection optical system, into a desired state.
32. (New) An apparatus according to Claim 25, further comprising driving means for moving an optical element of said projection optical system, on the basis of the measurement made by use of said interferometer.

33. (New) An apparatus according to Claim 25, further comprising means for determining whether the operation of said apparatus should be discontinued, on the basis of the measurement made by use of said interferometer.

34. (New) A device manufacturing method, comprising the steps of:
exposing a workpiece by use of an exposure apparatus as recited in Claim 25; and
processing the exposed workpiece.